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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,704	05/27/2005	Nobuyoshi Takeuchi	92478-3200	9263

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SNELL & WILMER L.L.P.  
600 ANTON BOULEVARD  
SUITE 1400  
COSTA MESA, CA 92626

EXAMINER

WALFORD, NATALIE K

ART UNIT PAPER NUMBER

2879

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/536,704

**Applicant(s)**

TAKEUCHI ET AL.

**Examiner**

Natalie K. Walford

**Art Unit**

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/05, 6/05, 7/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "34" has been used to designate both electrode part and power supply parts (specifically pages 9-10 of specification). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: figure 2, items 37, 45, 47, 51, and 61. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing

on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keijser et al. (US 6,300,729) in view of Kurashina et al. (US PUB 2002/0155944).

Regarding claim 1, Keijser discloses a metal halide lamp in figures 1 and 2 comprising an arc tube (item 1) that includes: a pair of electrode structures, each of which has an electrode (items 4 and 5) at a tip (items 4b and 5b); a main tube part (item 3), and containing a discharge space (item 11) in which the electrodes of the electrode structures are located to oppose each

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other; and a pair of thin tube parts (item 34 and 35) that connect from the main tube part and are sealed by respective sealing members (item 10) with the electrode structures inserted therein, wherein  $20 \leq WL \leq 50$  and  $EL/Di \geq 2.0$  and are satisfied (column 4, lines 41-43), where tube wall loading of the arc tube is  $WL$  ( $W/cm^2$ ), a distance between the electrodes is  $EL$  (mm), and an inner diameter of the main tube part is  $Di$  (mm), but does not expressly disclose that the main tube part is made of polycrystalline alumina ceramic and that  $0.5 \leq G \leq 5.0$  is satisfied, where a crystal grain diameter of the polycrystalline alumina ceramic is  $G$  ( $\mu m$ ), as claimed by Applicant. Kurashina is cited to show a ceramic polycrystalline to be used in an arc tube of a metal halide lamp (paragraph 2). Kurashina also shows that the ceramic polycrystalline has an average grain size in the range of 5 to 50  $\mu m$  (paragraph 12). Kurashina teaches that by using this type of ceramic polycrystalline structure, there is no fear to occur any cracks under temperature variations (paragraph 13).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Keijser's invention to include the main tube part made of polycrystalline alumina ceramic and that  $0.5 \leq G \leq 5.0$  is satisfied, where a crystal grain diameter of the polycrystalline alumina ceramic is  $G$  ( $\mu m$ ) as suggested by Kurashina for preventing cracks under temperature variations.

Regarding claim 2, Keijser and Kurashina disclose the metal halide lamp of claim 1, wherein the crystal grain diameter  $G$  ( $\mu m$ ) of the polycrystalline alumina ceramic satisfies  $0.5 \leq G \leq 1.5$  (paragraph 28).

Regarding claim 3, the combined reference of Keijser and Kurashina disclose the metal halide lamp of claim 1, wherein the inner diameter  $D_i$  (mm) of the main tube part satisfies  $2.0 \leq D_i \leq 10.0$  (Keijser; column 4, lines 41-42).

Regarding claim 4, the combined reference of Keijser and Kurashina disclose the metal halide lamp of claim 1, but do not expressly disclose that the polycrystalline alumina ceramic contains magnesium oxide (MgO) of 200 ppm or below, as claimed by Applicant. Kurashina does disclose though, that the MgO may be contained at 250 ppm (paragraph 28). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the polycrystalline alumina ceramic contain magnesium oxide (MgO) of 200 ppm or below, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 5, the combined reference of Keijser and Kurashina disclose the metal halide lamp of claim 1, wherein the polycrystalline alumina ceramic has transmittance of 94% or more (Kurashina; paragraph 32).

### ***Contact Information***

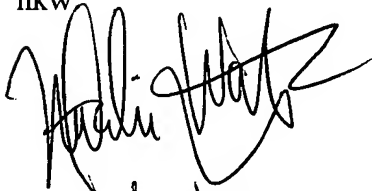
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie K. Walford whose telephone number is (571)-272-6012. The examiner can normally be reached on Monday-Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

nkW



8/15/06

S. Roy  
8/16/06  
Sikha Roy  
AU 2879